



PATENT
Attorney Docket No. 401471

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SAKAMOTO et al.

Application No. 10/002,620

Filed: December 5, 2001

Art Unit: 1761

Examiner: C. Sayala

For: FERTILIZER, PROCESS FOR
PRODUCING THE SAME, PROCESS
FOR CONTROLLING
INORGANIZING SPEED OF
UREA/ALIPHATIC ALDEHYDE
CONDENSATION PRODUCT, AND
PROCESS FOR GROWING CROPS

DECLARATION UNDER 37 CFR §1.132 OF ATSUSHI SAKAMOTO

U.S. Patent and Trademark Office
220 20th Street S. Customer Window, Mail Stop
Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202

Dear Sir:

I, Atsushi Sakamoto, hereby declare that:

1. I am currently employed by Chisso Corporation, at Minamata Research Center, as a research scientist. I have a Masters degree in Agriculture from Kyushu University.

Kyushu

2. I conducted an experiment to determine the elution characteristics of monoammonium phosphate and diammonium phosphate which are phosphate components disclosed in U.S. Patent No 4,280,830 to Ferguson et al. (monoammonium phosphate) and U.S. Patent No. 4,025,329 to Goertz (monoammonium phosphate and diammonium phosphate).

3. The experimental procedure utilized to determine the elution characteristics of monoammonium phosphate was as follows: monoammonium phosphate manufactured by Wako Pure Chemical Industries, Ltd. was crushed to a fine powder in a mortar. Two grams of the finely crushed monoammonium phosphate were added to a 300 mL bottle containing 150 mL of an aqueous solution of 2 weight percent citric acid heated to 30 °C (a ratio of monoammonium phosphate to 2 wt% aqueous citric acid solution of 0.013). The bottle was immediately shaken in a shaking bath (Yamato Scientific Co., Ltd., Model BW200, Rotation: 150 rpm). After 5 seconds (0.083 minutes) a small amount of the top clear layer of the aqueous solution of citric acid was removed and diluted.
4. The concentration of phosphate components in the diluted solution was measured using ion-chromatography. An elution ratio of phosphate components of monoammonium phosphate was then calculated using the measured concentration.
5. Based on the above experimental procedure, it was determined that 100 weight percent of the phosphate components in the monoammonium phosphate eluted in 5 seconds (0.083 minutes).
6. The experimental procedure utilized to determine the elution characteristics of diammonium phosphate was as follows. Diammonium phosphate manufactured by Wako Pure Chemical Industries, Ltd. was crushed to a fine powder in a mortar. Two grams of the finely crushed diammonium phosphate were added to a 300 mL bottle containing 150 mL of an aqueous solution of 2 weight percent citric acid heated to 30 °C (a ratio of diammonium phosphate to 2 wt% aqueous citric acid solution of 0.013). The bottle was immediately shaken in a shaking bath (Yamato Scientific Co., Ltd., Model BW200, Rotation: 150 rpm). After 5 seconds (0.083 minutes) a small amount of the top clear layer of the aqueous solution of citric acid was removed and diluted.
7. The concentration of phosphate components in the diluted solution was measured using ion-chromatography. An elution ratio of phosphate components of diammonium phosphate was calculated using the measured concentration.
8. Based on the experimental procedure set forth above, it was determined that 100 weight percent of the phosphate components in the diammonium phosphate eluted in 5 seconds (0.083 minutes).

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9. The sparingly water-soluble phosphatic fertilizer as claimed in U.S. Application No. 10/002, 620 ("the present application"), has elution characteristics where 80 weight percent of the phosphate components of the sparingly water-soluble phosphatic fertilizer elute in a range of 0.1 to 2000 minutes in a 2 weight percent solution of aqueous citric acid when the ratio of sparingly water-soluble phosphatic fertilizer to 2 wt% aqueous citric acid solution is 0.013.

10. According to the above experimental results, monoammonium phosphate and diammonium phosphate have elution characteristics where 100 weight percent of the phosphate components elute in only 5 seconds when mixed with a 2 wt% solution of aqueous citric acid in a ratio of phosphatic fertilizer to citric acid solution of 0.013, and thus, monoammonium phosphate and diammonium phosphate are not sparingly water-soluble phosphatic fertilizers as claimed in the present application.

11. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

October 8, 2004
Date

Atsushi Sakamoto
Atsushi Sakamoto